



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,213	11/25/2003	Kris Senecal	NA-1174 D1	7033

7590 12/14/2004

U.S. Army Soldier and Biological
Chemical Common
Kansas Street
AMSSB-OCC(N)
Natick, MA 01760

EXAMINER

TORRES VELAZQUEZ, NORCA LIZ

ART UNIT PAPER NUMBER

1771

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/722,213

Applicant(s)

SENECAL ET AL.

Examiner

Norca L. Torres-Velazquez

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>112503</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Independent claim 1 recites a physical property of a nonwoven membrane of polymer fibers (i.e. electrical conductivity of at least about 10^{-6} S/cm). *Ex parte Slob*, 157 USPQ 172, states the following with regard to an article claimed by defining property values:

Claims merely setting forth physical characteristics desired in article, and not setting forth specific compositions which would meet such characteristics, are invalid as vague, indefinite, and functional since they cover any conceivable combination of ingredients either presently existing or which might be discovered in future and which would impart desired characteristics; thus expression "a liquefiable substance having a liquefaction temperature from about 40°C. to about 300°C. and being compatible with the ingredients in the powdered detergent composition" is too broad and indefinite since it purports to cover everything which will perform the desired functions regardless of its composition, and, in effect, recites compounds by what it is desired that they do rather than what they are; expression also is too broad since it appears to read upon materials that could not possibly be used to accomplish purposes intended.

Thus, claims 1-8 are indefinite for reciting only the desired physical properties of the nonwoven membrane, rather than setting forth structural and/or chemical characteristics of said nonwoven membrane.

Further, it is noted that:

Reciting the physical and chemical characteristics of the claimed product will not suffice where it is not certain that a sufficient number of characteristics have been recited that the claim reads only on the particular compound which the applicant has invented. *Ex parte Siddiqui* 156 USPQ 426; *Ex parte Davission et al.* 133 USPQ 400; *Ex parte Fox* 128 USPQ 157

4. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the

Art Unit: 1771

invention. The claims recites "A conductive (electrical, ionic, and photoelectric) polymer membrane article...". It is not clear if applicants are defining the term conductive by the terms in parenthesis or if the article has all the recited properties? Applicants must positively recite the limitations in the claim instead of using parenthesis. No patentable weight is given to those terms in parenthesis.

5. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim recites "...at least about nanoamps/cm²". It is not clear if applicants are claiming "at least about 10⁻⁹ amps/cm²" or if there is a value missing in front of the units?

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-8 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a nonwoven membrane formed from a spin dope that includes a polymer solution, a conductive polymer and inorganic semi-conducting nanoparticles from the material disclosed on pages 8 and 9 of the Specification, does not reasonably provide enablement for the nonwoven membrane defined by the specific desired property of electrical conductivity. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. It seems that the applicants are attempting to obtain patent protection on a final product made of a non-existent process that may be made some day in the future, but only provides guidance on how to make the final product by a specifically disclosed process. The specification does not

provide enablement for one of ordinary skill in the art that is reasonably commensurate in scope with the properties sought by the claims.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

9. Claims 1-2 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by KINLEN (US 6,127,033)

KINLEN et al. discloses a method for producing fibers by spinning a solution which includes an organic salt of an intrinsically conductive polymer (ICP), a matrix polymer and a

spinning solvent into a coagulation bath a non-solvent for both polymers. The intrinsically conductive polymer-containing fibers typically have electrical conductivities below about 10^{-5} S/cm. (Abstract) The reference teaches producing fibers with a fiber denier ranging from about 0.5 to about 20. (Col. 11, lines 65-66) It is noted that the fiber denier range taught by the reference includes microfibers that comprise the diameters claimed herein. The reference teaches that the fibers have mechanical properties suitable for use in forming textile materials, i.e., fabric made from fibers. (Col. 3, lines 15-17) KINLEN et al. further teaches using the textile fibers in applications for absorption of electromagnetic radiation, shielding applications, applications where the anti-corrosive property of polyaniline is useful. (Col. 12, lines 25-44) The Examiner's interpretation gives a broad definition to the textile materials of the reference to include nonwoven fabrics. The reference further the reference teaches the use of polyaniline, polyphenylene, polypyrrole, and polythiophene as suitable organic polymers. (Col. 4, lines 42-53) The reference further teaches the use of cellulose acetate, polyacrylonitrile and polyurethanes as suitable matrix polymer substances. (Col. 7, lines 61-65)

Therefore, it is the Examiner's interpretation that claims 1-3 and the fabrics taught by KINLEN et al.

10. Claim 3 is rejected under 35 U.S.C. 102(e) as being anticipated by KINLEN (US 6,127,033) as stated above.

Although KINLEN et al. does not explicitly teach the claimed current produced by the membrane it is reasonable to presume that this property is inherent to conductive material of KINLEN et al. Support for said presumption is found in the use of like materials (i.e. fabric made from microfibers made from similar materials to those disclosed in the present

Art Unit: 1771

application). The burden is upon Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed property of a current of at least about 10^{-9} amps/cm² would obviously have been present one the KINLEN et al. product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977) as to the providing of this rejection made above under 35 USC 102.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over KILDEN et al. as applied above, and further in view of ANGELOPULOS et al. (US 5,997,773).

The limitation in claim 4 would have been obvious in the art, because it is a common practice in the art to form a conductive composition where a polythiophene (taken to be a photo-reactive compound, in light of disclosure) is incorporated to another conductive polymer such as a polyaniline. (Abstract; Col. 1, lines 10-31; Col. 2, lines 18-47; claim 1)

13. Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over KILDEN et al. as applied to above, and further in view of ANGELOPULOS et al. (US 5,997,773) and BAUGHMAN et al. (US 6,555,945).

The limitations in these claims would have been obvious in the art, because it is old in the art to blend conductive particles with a conductive polymer such as polyaniline in forming a conductive composition as exemplified in the teachings of Angelopoulos et al. (Abstract; Col. 2,

Art Unit: 1771

lines 18-59; claim 1) and it is also known in the art to use carbon nanofibers with a conductive polymer. BAUGHMAN et al. (Abstract ; col. 11, lines 6-64)

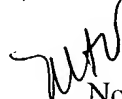
14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

TANI et al. (US 5,112,677) – discloses an electret sheet that comprises a porous sheet made of a dielectric polymer. The term dielectric is defined as a nonconductor of direct electric current. (Merriam-Webster's Collegiate Dictionary, Tenth edition)

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Norca L. Torres-Velazquez whose telephone number is 571-272-1484. The examiner can normally be reached on Monday-Thursday 8:00-4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Norca L. Torres-Velazquez
Examiner
Art Unit 1771

December 10, 2004